

Try these two problems.

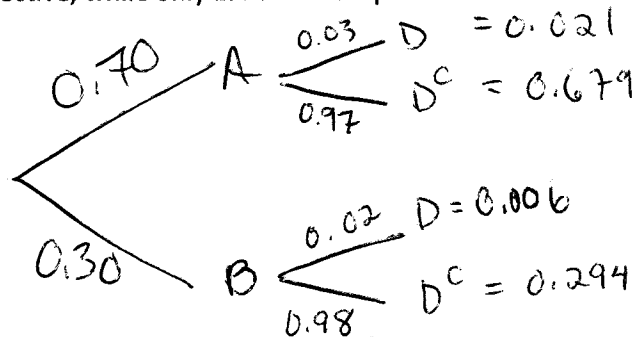
1. A VCR manufacturer receives 70% of its parts from factory A and the rest from factory B. Suppose that 3% of the output from A are defective, while only 2% of the output from B are defective. (make a diagram below!)

$$P(A) = 0.7$$

$$P(B) = 0.3$$

$$P(D|A) = 0.03$$

$$P(D|B) = 0.02$$



- a. What is the probability that a received part is defective?

$$P(D) = 0.027 = 0.021 + 0.006$$

- b. If a randomly chosen part is defective, what is the probability that it came from factor A? From factory B?

$$P(A|D) = \frac{0.021}{0.027} = 0.778$$

$$P(B|D) = \frac{0.006}{0.027} = 0.222$$

2. A particular football team is known to run 30% of its plays to the left and 70% to the right. A linebacker on an opposing team notes that the right guard shifts his stance most of the time (80%) when plays go to the right and that he uses a balanced stance the rest of the time. When plays go left, the guard takes a balanced stance 90% of the time and the shift stance the remaining 10%. What is the probability that a play will go to the left if the guard is balanced? (make a diagram below!)

$$P(L) = 0.3$$

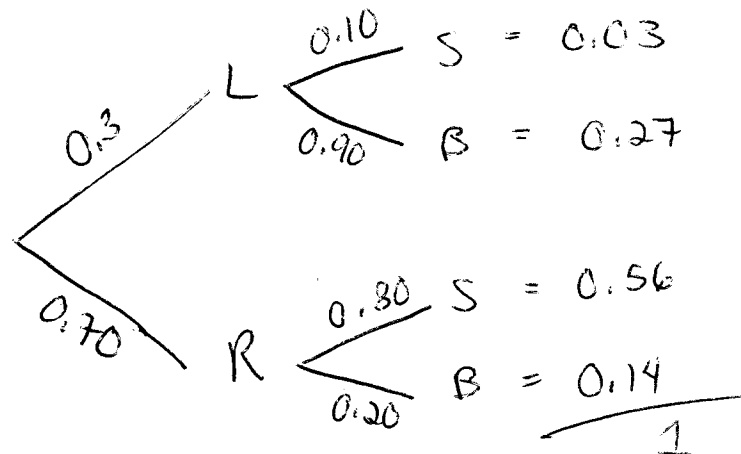
$$P(R) = 0.7$$

$$P(S|R) = 0.8$$

$$P(B|L) = 0.90$$

$$P(S|L) = 0.10$$

$$P(B|R) = 0.20$$



$$P(L|B) = \frac{0.27}{(0.27 + 0.14)} = 0.6585$$